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09/818,627

03/28/2001

Daisuke Kotake

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01/09/2006

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EXAMINER

EDWARDS, PATRICK L

ART UNIT

PAPER NUMBER

2621

DATE MAILED: 01/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/818,627

Applicant(s)

KOTAKE ET AL.

Examiner

Patrick L. Edwards

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-7,10,11,15-17,20,33,35,37 and 38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-7,10,11,15-17,20,33,35,37 and 38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 14 October 2005 has been entered.

Response to Arguments

2. Applicant's arguments filed on 14 October 2005 have been fully considered. A response to these arguments is provided below.

Prior Art Rejections

Summary of Argument:

- a. Regarding claim 1, applicant alleges that that Boyer (USPN 6,337,882) fails to disclose that an angular field of view of the partial images doubles the angular field of the display.
- b. Regarding claims 10 and 20, applicant alleges that the cited combination of Boyer and Toyofuku (USPN 6,661,455) fails to disclose the limitation of drawing a 90 degree rotated partial image in successive memory space.

Examiner's Response:

- a. This argument was presented prior to the previous final rejection. It was discussed as a rejection under 35 USC 103, and it was further discussed in the response to arguments sections. The limitation in question has not been amended and thus further discussion regarding this limitation would be repetitive.
- b. The examiner disagrees. This limitation was previously discussed with respect to claim 10. The rejection will be repeated below.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1, 11, 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyer et al (USPN 6,337,882).

With regard to claim 1, which is representative of claim 11, Boyer discloses a storage unit configured to store a plurality of partial images (element 220 of Fig. 2). The partial images are obtained by dividing a panoramic image by a predetermined angular field of view (col. 6 lines 22-24). The horizontal partitioning of a panoramic image as disclosed in Boyer is analogous to the division of a panoramic image as recited in the claim. This is done for a plurality of panoramic images (col. 3 lines 53-55), each of which inherently correspond to a plurality of viewpoints as recited in the claim.

Boyer further discloses an input unit configured to permit a user to perform an input operation (Boyer col. 2 lines 29-30).

Boyer further discloses a selection unit configured to select a partial image from storage based on information about a position and a direction of a view point, and an angular field of view of a display (col. 6 lines 31-52). The inflated images disclosed in Boyer are analogous to the partial images recited in the claim. Boyer discloses selecting these inflated images based on the selected image view, which is analogous to viewpoint position and direction, and angular field of view of a display as recited in the claim. Boyer also discloses that the selected image views are displayed on a display screen (col. 4 line 13).

Boyer further discloses a generation unit configured to generate an image corresponding to the position and direction of a viewpoint from the selected partial image, and providing the generated image for the display means (col. 6 line 62 – col. 7 line 6).

Boyer further discloses that adjacent partial images share overlapping portions (col. 6 lines 22-24) and that the whole of the partial image is overlapped by adjacent partial images (col. 6 lines 22-30 in conjunction with Figure 1C).

Boyer further discloses that the angular field of view of the partial image is significantly larger than the angular field of the display (col. 7 lines 2-4 in conjunction with Figure 1D). Figure 1D clearly shows the size relationship between the two angular fields of view. In fact, if one were visually estimating the relationship between the angular field of view of partial image 195 and the angular field of view of the display 185, one would probably guess that the angular field of view of the partial image doubled the angular field of view of the display. Be that as it may, it still stands that Boyer never explicitly recites that the angular field of view of 195 is exactly twice the angular field of view of 185.

However, it would have been an obvious matter of design choice to modify Boyer by having the partial image field of view exactly double the display field of view, since the applicant has not disclosed that having a partial image field of view which is exactly twice the size of a display field of view solves any stated problem or is for any particular purpose and it appears that the image reproduction apparatus would perform equally well if the partial image field of view wasn't exactly twice the size of the display field of view.

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With regard to claims 33 and 35, a computer-readable storage medium that stores a program which causes the computer to execute the steps of a method is essential if the image processing method disclosed in Boyer is to function. Therefore, a computer program stored on a storage medium is inherent in the teachings of Boyer.

5. Claims 5, 10, 15, 20, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyer as applied to claims 1 and 11 above, and further in view of Toyofuku et al (USPN 6,661,455). The arguments as to the relevance of Boyer as applied above are incorporated herein.

As applied to claim 5, which is representative of claim 15, Boyer fails to expressly disclose that the partial images are stored as independent files. Toyofuku, however, discloses storing the frames which make up a panoramic image as independent files (Toyofuku col. 10 lines 46-57). The frames disclosed in Toyofuku are analogous to the partial images as recited in the claim. It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Boyer's image reproduction apparatus to specify that the partial images are stored as independent files in memory as taught by Toyofuku. Such a modification would have allowed for a modular system in which the partial images of a panoramic image were separated in memory and distinct.

As applied to claim 10, which is representative of claim 20, Boyer further discloses 'drawing' the selected partial images in a successive memory space (Boyer col. 5 lines 18-23: The reference describes storing the partial images in a memory space. The 'storing' operation of Boyer is analogous to the 'drawing' as recited in the claim. Furthermore, boyer discloses that this storing operation is performed successively (i.e. sequentially, see col. 5 lines 14-15 of boyer).

As further applied to claims 10 and 20, Toyofuku additionally discloses storing a partial image as a rotated image (Toyofuku col. 10 lines 46-57), but does not expressly disclose that image is rotated 90 degrees. However, it would have been an obvious matter of design choice to modify the combination of Boyer and Toyofuku by having the partial image stored as a 90 degree rotated image, rather than as an image that has been rotated some other amount. Storing the image as a 90 degree rotated image would have been obvious at the time of the invention because it is consistent with the highly utilized and ubiquitous cartesian coordinate system, and would have resulted in simplified and more efficient computations.

With regard to claims 37 and 38, a computer-readable storage medium that stores a program which causes the computer to execute the steps of a method is essential if the image processing method disclosed in the combination of Boyer and Toyofuku is to function. Therefore, a computer program stored on a storage medium is inherent in these teachings.

6. Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Boyer and Toyofuku as applied to claims 5 and 15 above, and further in view of DeNies (US 2002/0021353 A1). The arguments as to the relevance of the aforesaid combination as applied above are incorporated herein.

With regard to claim 6, which is representative of claim 16, Boyer discloses determining a next file based on the position and viewpoint information (Boyer col. 6 lines 45-52). Boyer fails to expressly disclose that the view point

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is moving along a road on a map and the view point information is the position and moving direction of the view point.

DeNies, however, discloses recording panoramas while moving along a street (DeNies paragraph 0019) It would have been obvious to one reasonably skilled in the art at the time of the invention to modify the combination of Boyer and Toyofuku to include the additional capability that a view point can change in a moving direction along a road on a road map as taught DeNies. Such a modification would have allowed for a more robust system that could have different panoramic images which corresponded to different locations on a map and different view points for each of those panoramic images. This would have allowed for a system that had the additional capability of mobility.

7. Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyer as applied to claims 1 and 11 above, and further in view of Endo et al. (EP 0 921 376). The arguments as to the relevance of Boyer as applied above are incorporated herein.

With regard to claim 7, which is representative of claim 17, Boyer discloses storing $m \times n$ partial images obtained by n panoramic images each comprising m partial images (col. 6 lines 10-30) Boyer further discloses macroblock indentifiers which indicate position data of the partial images (col. 5 lines 18-22). Although Boyer doesn't explicitly state that this position data is a start position of the partial images, Boyer does disclose determining partial images which correspond to a selected image view on the basis of the position information of the selected image view. In order to do this, a start position of a partial image file is inherently stored. Boyer further discloses determining a partial image to be generated based on viewpoint direction information and the angular field of view of the display and obtaining a partial image to be provided according to the header information. Boyer fails to expressly disclose determining a file containing an entire image corresponding to the viewpoint position information.

Endo, however, discloses determining an image file based on the viewpoint position information (Endo paragraphs 0108-0109). It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Boyer's image reproduction apparatus in order to include a mechanism for determining panoramic images based on the position information as taught by Endo. Such a modification would have allowed for a mechanism of tracking the position information of panoramic images in a mobile system

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick L Edwards whose telephone number is (571) 272-7390. The examiner can normally be reached on 8:30am - 5:00pm M-F.

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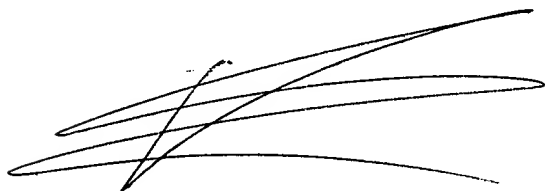
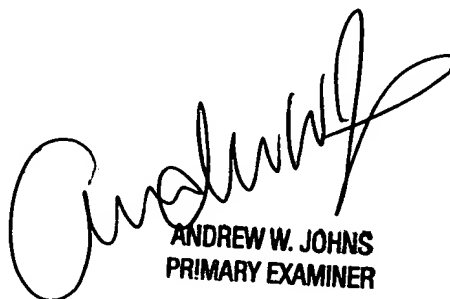
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joe Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick L Edwards

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A handwritten signature consisting of several overlapping, sweeping lines, likely representing the name Patrick L Edwards.A handwritten signature in cursive script, likely representing the name Andrew W. Johns.
ANDREW W. JOHNS
PRIMARY EXAMINER